

THE
INDIAN JOURNAL
OF
AGRICULTURAL SCIENCE

Issued under the authority

of

The Imperial Council of Agricultural Research



Annual subscription
Rs. 15 or 23s. 6d.

Price per part
Rs. 3 or 5s.

PUBLISHED BY THE MANAGER OF PUBLICATIONS, DELHI
PRINTED BY THE MANAGER, GOVERNMENT OF INDIA PRESS, NEW DELHI,
1943

Editorial Committee

SIR PHEROZE M. KHAREGAT, C.I.E.,
I.C.S., Vice-Chairman, Imperial
Council of Agricultural Research

W. BURNS, C.I.E., D.Sc., Agricultural
Commissioner with the Government of India

F. WARE, C.I.E., F.R.C.V.S., F.N.I.,
I.V.S., Animal Husbandry Commissioner
with the Government of India

RAO BAHADUR B. VISWANATH, C.I.E.,
F.I.C., F.C.S., Director, Imperial
Agricultural Research Institute, New
Delhi

F. C. MINETT, D.Sc., M.R.C.V.S., Director,
Imperial Veterinary Research Institute,
Mukteswar

ZAL R. KOTHAVALLA, B.Ag., B.Sc.,
N.D.D., Director of Dairy Research,
Bangalore

J. N. MUKHERJEE, C.B.E., D.Sc., Ghose
Professor of Chemistry, University
College of Science and Technology,
Calcutta

BIRBAL SAHNI, M.A., Sc.D. (Cantab.),
D.Sc. (Lond.), F.R.S., Professor of
Botany, Lucknow University

JAMES N. WARNER, M.Sc., Professor of
Animal Husbandry and Dairying,
Allahabad Agricultural Institute,
Allahabad

S. KRISHNA, C.I.E., Ph.D., D.Sc., F.I.C.,
Bio-Chemist, Forest Research Institute,
Dehra Dun

B. SAHAY, I.C.S., Secretary, Imperial
Council of Agricultural Research

Editor

F. M. DE MELLO, B.A., B.Sc. (Econ.)

The Editorial Committee, in its work of examining papers received for publication, is assisted in an honorary capacity by a large number of scientists working in various parts of India.

Editorial communications including books and periodicals for review should

be addressed to the Secretary, Imperial Council of Agricultural Research, Publication Section, New Delhi.

Communications regarding subscription and advertisements should be addressed to the Manager of Publications, Civil Lines, Delhi.

Instructions to Authors

Articles intended for THE INDIAN JOURNAL OF AGRICULTURAL SCIENCE should be accompanied by short popular abstracts of about 300 words each.

In the case of botanical and zoological names the International Rules of Botanical Nomenclature and the International Rules of Zoological Nomenclature should be followed.

References to literature, arranged alphabetically according to authors' names, should be placed at the end of the article, the various references to each author being arranged chronologically. Each reference should contain the name of the author (with initials), the year of publication, title of the article, the abbreviated title of the publication, volume and page. In the text, the reference should be indicated by the author's name, followed by the year of publication enclosed in brackets; when the author's name occurs in the text, the

year of publication only need be given in brackets. If reference is made to several articles published by one author in a single year, these should be numbered in sequence and the number quoted after year both in the text and in the collected references.

If a paper has not been seen in original it is safe to state 'Original not seen'.

Sources of information should be specifically acknowledged.

As the format of the journals has been standardized, the size adopted being crown quarto (about 7½ in. x 9½ in. cut), no text-figure, when printed, should exceed 4½ in. x 5 in. Figures for plates should be so planned as to fill a crown quarto plate, the maximum space available for figures being 5½ in. x 8 in. exclusive of that for letterpress printing.

Copies of detailed instructions can be had from the Secretary, Imperial Council of Agricultural Research, New Delhi.

INDEX TO VOL. XII

AUTHORS

PAGE

A

LEEM, S. A. <i>see</i> GHANI, M. O.	873
ZIZ, M. A. <i>see</i> QADRI, M. A. H.	883

B

AGCHI, S. N. <i>see</i> MUKHERJEE, J. N.	889
BANNERJEE, S. <i>see</i> MUKHERJEE, J. N.	303
BANSAL, R. K. <i>see</i> SINGH, D. N.	779
ASU, J. K. and VANIKAR, J. V.—'Soils of the Deccan Canals, II. Studies in Availability of Nitrogen in Soil with Application of Farmyard Manure under different Conditions of Moisture and C/N Ratios'	121
BASURAYCHAUDHURI, P. K. <i>see</i> RAYCHAUDHURI, S. P.	137
HASKARAN, T. R. and PILLAI, S. C.—'Fixation of Atmospheric Nitrogen in Living Forms'	178

C

CHAKRAVARTI, S. C. <i>see</i> SEN, B.	1
CHAKRAVORTY, S. K. <i>see</i> MUKHERJEE, J. N.	291
CHATTERJEE, B. and PAUL, M.—'Interaction between Hydrogen Clays and Neutral Salts, II. The Role of Aluminium Ions in relation to the Free and Total Acids of Hydrogen Clays'	113
— <i>see</i> MUKHERJEE, J. N.	86, 105
CHATURVEDI, H. S. <i>see</i> SRIVASTAVA, R. C.	158
CHIN, T. C. and CHWANG, C. S.—'The Cytology of Blue Wheat Hybrids'	661
CHOPRA, J. D. <i>see</i> LANDER, P. E.	697
CHWANG, C. S. <i>see</i> CHIN, T. C.	661

D

DAS, N. K. <i>see</i> MUKERJI, B. K.	313
DASTUR, J. F.—'Effect of Cotton Seed Disinfection on Yield'	364
— 'Notes on some Fungi isolated from Black Point-affected Wheat Kernels in the Central Provinces'	731
DASTUR, R. H. and SAMANT, K. M.—'Studies in the Periodic Partial Failures of the Punjab-American Cottons in the Punjab, V. Physical and Chemical Properties of the Soils, associated with <i>Tirak</i> (Bad Opening of Bolls)'	474
— and SUCHA SINGH	603
VI. The effects of Sodium Salts on Growth and Development of <i>Tirak</i>	603
— and MUKHTAR SINGH	679
VII. Amelioration of <i>Tirak</i> on Soils with Saline Subsoils (Sandy Loams)	679

G

GHANI, M. O.—'Determination of Organic Phosphorus in Alkali Extracts of Soils'	336
— and ALEEM, S. A.—'Effect of Liming on the Transformation of Phosphorus in Acid Soils'	873
GUPTA, G. N. <i>see</i> SRIVASTAVA, R. C.	848

H

HAMID, A. <i>see</i> SINGH, L.	757
HUSAIN, M. A. and TREHAN, K. N.—'The Nature and Extent of Damage caused by <i>Bemisia gossypiperda</i> M. & L., the White-fly of Cotton in the Punjab'	793

HUTCHINSON, J. B. and SILOW, R. A.—'Gene Symbols for Use in Cotton Genetics'	902
--	-----

I

IYENGAR, N. K.—'Chromatin Bridges in Cotton'	785
—, R. L. N.—'Variations in the Measurable Characters of Cotton Fibres, IV. Variations with the Age of the Plant'	627

K

KRISHNA AYYAR, P. N.—'Biological Control of the Cotton Stem Weevil in South India'	58
KRISHNA IYER, P. V.—'Studies with Wheat Uniformity Trial Data, I. Size and Shape of Experimental Plots and the Relative Efficiency of different Layouts'	240

II. Balanced *versus* Randomized Arrangements

III. Distribution of Variances and Ratio of Variances	263
---	-----

III. Distribution of Variances and Ratio of Variances	274
---	-----

L

LANDER, P. E.—'The Influence of Variations in the Interval between the Cuttings on the Yield and Chemical Composition of some Perennial Grasses in the Punjab'	409
— and CHOPRA, J. D.—'Recovery of White Sugar from the Punjab and the United Provinces Canes'	697

M

MALIK, A. K.—'A Preliminary Study of the Ascent of Water through Soil Columns resting on a Water-table, Loss of Water by Evaporation and Associated Movement of Salts in the Soil'	648
MENON, S. R. K.—'Some Observations on the Growth of the Coconut Fruit with special reference to some of the Changes undergone by the Fibrous Constituents of its Mesocarp'	423

MITAL, S. P. <i>see</i> SINGH, D. N.	779
--------------------------------------	-----

MITRA, D. K. <i>see</i> MUKHERJEE, J. N.	889
--	-----

—, R. P., SINHA, R. K., ROY, S. P. and MUKERJEE, S.—'Properties of Sub-fractions of Hydrogen Clay prepared from Indian Soils, II'	638
---	-----

— <i>see</i> MUKHERJEE, J. N. 86, 291, 303, 433,	889
--	-----

MUKERJI, B. K. and DAS, N. K.—'Studies in Kumaun Hill Soils, III. Soil Types at Doonagiri'	313
--	-----

MUKHERJEE, K. C. <i>see</i> Sulaiman, M. (also Raychaudhuri, S. P.)	323
---	-----

MUKHERJEE, J. N. and MITRA, R. P.—'On the Nature of Reactions responsible for Soil Acidity, IX. The Acid Character of Hydrogen Clays'	433
---	-----

— and BANNERJEE, S.—'Alterations in the Properties of Hydrogen Clays on the Removal of Free Inorganic Oxides contained in them, I'	303
--	-----

—, BAGCHI, S. N. and MITRA, D. K.—'Differentiation of Hydrogen Clays and Hydrogen Bentonites and Identification of Mineral Constituents contained in them by Electro-Chemical Methods, I. Kaolinite and Kaolinitic Clays'	889
---	-----

PAGE	PAGE		
MUKHERJEE, J. N. and CHAKRAVORTY, S. K.— ‘Properties of Sub-fractions of Hydrogen Clay prepared from Indian Soils, I’	291	SAMANT, K. M. <i>see</i> DASTUR, R. H.	474
—, CHATTERJEE, B. and MUKHERJEE, S. K.—‘On the Nature of Reactions responsible for Soil Acidity, VIII. The Acid Character of Hydrogen Clay in relation to some Problems of Soil Science’	86	SAMUEL, C. K. <i>see</i> PRUTHI, H. S.	35
MUKHERJEE, J. N. and CHATTERJEE, B.—‘Interaction between Hydrogen Clays and Neutral Salts, I. The Nature of the Interaction responsible for the Liberation of Aluminium’	105	SAPRA, A. N. <i>see</i> RAHMAN, KHAN A.	851
—, S. K. <i>see</i> MUKHERJEE, J. N.	86	SEN, B. and CHAKRAVARTI, S. C.—‘Studies in Vernalization of Mustard’	1
—, S. <i>see</i> MITRA, R. P.	638	—, K. M. <i>see</i> SIRKAR, S. M.	493
MUKHTAR SINGH <i>see</i> DASTUR, R. H.	679	—, P. K.—‘Production of Flowers on Root-stock Stems of Mango Grafts in the Nursery’	523
N		SIDDAPPA, G. S.—‘Ripening Changes in some Important Varieties of Grapes’	499
NARAIN, R. and SINGH, A.—‘Sampling of Sugarcane for Chemical Analysis, II’	822	SILOW, R. A. <i>see</i> HUTCHINSON, J. B.	902
NARAIN RAO, K. A. <i>see</i> SRIVASTAVA, R. C.	848	SINGH, A. <i>see</i> NARAIN, R.	822
NARASIMHAM, M. <i>see</i> SWAMI RAO, R.	400	—, D. N., BANSAL, R. K. and MITAL, S. P.—‘ <i>Cajanus obcordifolia</i> Singh, A new Species of <i>Cajanus</i> ’	779
NAYAK, H. R.—‘Studies on the Quality of Jaywant Cotton grown from Seeds obtained from different Stages of Propagation’	865	—, L. and Hamid, A.—‘The Cold Storage of Fruits in the Punjab, I. Citrus Fruits: Malta (<i>Citrus sinensis</i>) and Sangatra (<i>C. nobilis</i>)’	757
P		—, L. and SINGH, S.—‘Citrus Rootstock Trials in the Punjab, I. The Vigour of Young Trees of Sweet Orange, Mandarin and Grapefruit as influenced by different Rootstocks’	381
PAUL, M. <i>see</i> CHATTERJEE, B.	113	—, R. N.—‘Control of the Wooly Aphis (<i>Eriosoma lanigerum</i> Hausmann) by Spraying and other Methods’	588
PILLAI, S. C. <i>see</i> BHASKARAN, T. R.	178	—, RAMA NAGINA—‘The Fixation of Elementary Nitrogen by some of the Commonest Blue-green Algae from the Paddy Field Soils of the United Provinces and Bihar’	743
PRUTHI, H. S. and SAMUEL, C. K.—‘Entomological Investigations on the Leaf-curl Disease of Tobacco in Northern India, V. Biology and Population of the White-fly Vector in relation to the Incidence of the Disease’	35	—, S. <i>see</i> SINGH, L.	381
Q		—, U. B.—‘Stem-brown Disease of Apple in Kumaun’	368
QADRI, M. A. H. and AZIZ, M. A.—‘Notes on the Indian Species of Sugarcane Leaf-hopper, <i>Pyrilla</i> Stal. (<i>Lophopinae</i> : <i>Fulgoroidae</i>)’	883	SINHA, R. K. <i>see</i> MITRA, R. P.	638
R		SIRKAR, S. M. and SEN, K. M.—‘Effect of Temperature and Time on Dry Weight Determination of Mango Pulp’	493
RAHMAN, KHAN A.—‘Insect Pests of Stored Grains in the Punjab and their Control’	564	SOHI, G. S. <i>see</i> RAHMAN, KHAN A.	851
—, SOHI, G. S. and SAPRA, A. N.—‘Studies on Stored Grain Pests in the Punjab, II. Biology of <i>Bruchus analis</i> Fab. and <i>B. chinensis</i> Linn. (Bruchidae: Coleoptera) in the Punjab’	527	SRIVASTAVA, R. C., CHATURVEDI, H. S. and NARAIN RAO, K. A.—‘Utilization of Press-mud, Cane-trash and Bagasse in the Cane Fields, I. Composting by Aerobic Decomposition’	158
RANGASWAMI AYYANGAR, G. N. and VENKATARAMANA REDDY, T.—‘Seedling-Adult Colour Relationships and Inheritance in Sorghum’	341	—, NARAIN RAO, K. A. and GUPTA, G. N.—‘Utilization of Waste Products of the Sugar Industry in the Cane Fields, II. Preparation of Composts by Hot Fermentation’	848
RAYCHAUDHURI, S. P.—‘A Disease of Pigeon-pea (<i>Cajanus cajan</i> (L.) Millsp.), caused by <i>Diplodia cajani</i> Spec. Nov.’	137	SULAIMAN, M. and MUKHERJEE, K. C.—‘Studies on the Chemical Constituents of Indian Lateritic and Red Soils, III. Determination of the Percentage of Clay, Maximum Water-holding Capacity and of Free Iron Oxide, Free Alumina and Free Silica of Lowermost Layers of Profile Samples’	153
— and BASURAYCHAUDHURI, P. K.—‘Studies on Indian Red Soils, V. Factors responsible for Buffer Capacities and Base-exchange Properties’	323	SWAMI RAO, R. and NARASIMHAM, M.—‘Utilization of Virginia Tobacco Seed in the Madras Province’	400
— and MUKHERJEE, K. C.—‘Studies in Indian Red Soils, VI. Determination of Mineralogical Composition’	638	T	
ROY, S. P. <i>see</i> MITRA, R. P.	323	TALATI, R. P.—‘The Disposal of Poona Sewage for Irrigation and Cropping’	164
V		TREHAN, K. N. <i>see</i> HUSAIN, M. A.	793
VANIKAR, J. V. <i>see</i> BASU, J. K.	121	V	
VASUDEVA, R. S.—‘A Mosaic Disease of Cowpea’	281	VENKATARAMANA REDDY, T. <i>see</i> RANGASWAMI AYYANGAR, G. N.	341

SUBJECTS

PAGE	PAGE	
A		
ity (soil), nature of reactions responsible for	86, 433	
soils, effect of liming on the transformation of		
phosphorus in		
as of hydrogen clays, rôle of aluminium ions in		
relation to		
Agricultural Pests and Diseases Act, 1941		
(Bombay)		
(blue-green), fixation of elementary nitrogen		
in paddy soils by		
alki extracts of soils, determination of organic		
phosphorus in		
aluminium ions, rôle of, in relation to acids of		
hydrogen clays		
, nature of interaction responsible for		
operation of		
ysis (chemical), sampling of sugarcane for		
is (woolly), control of		
le, stem-brown disease of		
ent of water through soil columns		
ospheric nitrogen, fixation in living forms		
B		
asse, utilization in cane fields		
anced versus randomized arrangements in wheat		
iformity trials		
e-exchange properties, factors responsible for		
<i>caja gossypiperda</i> see White-fly		
tonites (hydrogen) and hydrogen clays, differentiation of		
logical control of the cotton stem weevil		
black point-affected wheat kernels, fungi isolated		
om		
e wheat hybrids, cytology of		
green algae, fixation of elementary nitrogen		
in paddy soils by		
ay Agricultural Pests and Diseases Act, 1941		
<i>chus analis</i> Fab., biology of		
<i>chus chinensis</i> Linn., biology of		
er capacities, factors responsible for		
C		
<i>mus cajan</i> (L.) Millsp., a disease of		
<i>mus obcordifolia</i> Singh—a new species of		
<i>janus</i>		
<i>see</i> sugarcane		
158, 697, 822, 848, 883		
romatin bridges in cotton		
<i>nobilis</i> (Sangtra), cold storage of		
<i>us</i> rootstock trials in the Punjab		
<i>us sinensis</i> (Malta), cold storage of		
(hydrogen), acid character of		
s (hydrogen), properties of		
, properties of sub-fractions		
, and neutral salts, interaction		
een		
s, kaolinite and kaolinitic		
nut fruit, growth of		
l storage of fruits in the Punjab		
posts by hot fermentation		
posting by aerobic decomposition		
on seed, effect of disinfection on yield		
stem weevil, biological control of		
fibres, variations in the measurable		
aracters of		
(Jaywant), quality of		
genetics, gene symbols for use in		
PAGE	PAGE	
Cotton, white-fly of		793
, chromatin bridges in		785
Cottons (Punjab-American), periodic partial		
failures of		474, 603, 679
Cowpea, a mosaic disease of		281
Crop plant characters and their ranges of variations		527
Cropping, disposal of sewage for		164
286		
D		
Deccan canals, soils of		121
<i>Diplodia cajani</i> spec. nov., a disease of pigeon-pea		837
Diseases and Pests Act, 1941, (Bombay Agricultural)		286
Doonagiri, soil types at		313
113		
743		
336		
105		
822		
588		
368		
648		
178		
E		
Electro-chemical methods for identification of		
mineral constituents of		
<i>Eriosoma lanigerum</i> Hausmann <i>see</i> wooly aphis		588
Experimental plots, size and shape of		240
121		
848		
627		
178		
743		
731		
661		
743		
286		
851		
851		
137		
F		
Farmyard manure, availability of nitrogen in soil		
with application of		
Fermentation (hot), preparation of composts by		848
Fibres (cotton), variations in the measurable cha-		
racters of		
Fixation of atmospheric nitrogen in living forms		178
— elementary nitrogen in paddy field soils		743
Fungi isolated from black point-affected wheat		731
504		
851		
381		
499		
409		
G		
Gene symbols for use in cotton genetics		902
<i>Gossypium</i> <i>see</i> cotton		58, 364, 474, 603, 627, 679, 785,
		793, 865, 902
Grains (stored) in the Punjab, insect pests of		504,
Grapefruit, vigour of young trees as influenced by		851
different rootstocks		381
Grapes, ripening changes in		499
Grasses (perennial) in the Punjab.		409
564		
341		
364		
164		
H		
Hot fermentation, preparation of composts by		848
Hydrogen clay, acid character of		86, 433
, sub-fractions of		291, 638
, clays and neutral salts, interaction		
between		105, 113
and hydrogen bentonites, different-		
iation of		889
, alterations in the properties of		303
113		
323		
638		
341		
564		
164		
I		
Indian laterite and red soils		153
— red soils, studies in		137, 323
— soils, hydrogen clay prepared from		291,
Inheritance of colour in sorghum		638
Insect pests of stored grains		341
Irrigation, disposal of sewage for		564
341		
527		
865		
J		
Jaywant cotton, quality of		865
<i>Jowar</i> <i>see</i> sorghum		341, 527
313		
368		
K		
Kaolinite and kaolinitic clays		889
Kumaun hill soils, studies in		313
—, stem-brown disease of apple in		368
627		
865		
902		

L	PAGE	P	
Lateritic and red soils, chemical constituents of	153	Quarantine (Plant) Notifications	288, 525,
Leaf-curl disease of tobacco	35		
Leaf-hopper of sugarcane	883		
Liming effect on the transformation of phosphorus in acid soils	873		
Living forms, fixation of atmospheric nitrogen in	178		
M			
<i>Manures and fertilizers</i> —			
Disposal of Poona sewage for irrigation and cropping	164	<i>Rahar</i> <i>see</i> pigeon-pea	
Soils of the Deccan canals, II. Studies in availability of nitrogen in soil with application of farmyard manure under different conditions of moisture and C/N ratios	121	Randomized <i>versus</i> balanced arrangements in wheat uniformity trial data	
Utilization of press-mud, cane-trash and bagasse in the cane fields, I. Composting by aerobic decomposition	158	Ranges of variation of crop plant characters	
Waste products of the sugar industry in the cane fields, II. Preparation of composts by hot fermentation	848	Reviews—	
Maynard-Ganga Ram Prize	287	Annual Review of Biochemical and Allied Research in India	284,
Mosaic disease of cowpea	281	An Agricultural Testament	
Mustard, vernalization of	1	Ripening changes in grapes	
N			
Neutral salts and hydrogen clays, interaction between	105, 113	Rice field soils, fixation of nitrogen in	
<i>Nicotiana</i> <i>see</i> tobacco	35, 400	Rootstock (citrus) trials in the Punjab	
Nitrogen (elementary), fixation of	743	— stems of mango grafts, production of flowers on	
— (atmospheric), fixation in living forms	178	S	
— in soil, availability of	121	<i>Saccharum</i> <i>see</i> sugarcane	697, 822, 848,
O			
Orange <i>see</i> citrus	381, 757	Saline subsoils, amelioration of <i>tirak</i> on soils with	
Organic phosphorus in alkali extracts of soils, determination of	336	Salts (sodium), effect on growth of <i>tirak</i>	
<i>Oryza sativa</i> <i>see</i> paddy	743	— (neutral) and hydrogen clays, interaction between	
P			
Paddy field soils of the United Provinces and Bihar, fixation of nitrogen in	743	Sampling of sugarcane for chemical analysis	105,
<i>Pempherulus affinis</i> Fst. <i>see</i> cotton stem weevil	58	Sandy loams, amelioration of <i>tirak</i> on	
Perennial grasses in the Punjab, composition of	409	<i>Sangtra</i> , cold storage of	
Pests and Diseases Act, 1941, (Bombay Agricultural)	286	Seedling-adult colour relationships in sorghum	
— (insect) of stored grains in the Punjab	564, 851	Sewage, disposal of	
Phosphorus in acid soils, effect of liming on the transformation of	873	Sodium salts, effect on growth of <i>tirak</i>	
— (organic) determination in alkali extracts of soils	336	Soil acidity, reactions responsible for	86,
<i>Pigeon-pea</i> , a disease of	837	— columns, ascent of water through	
Plant Quarantine Notifications	288, 525, 788	Soils (acid), effect of liming on transformation of phosphorus in	
— (crop) characters, description of	527	— with saline subsoils, amelioration of <i>tirak</i> on	
Poona sewage for irrigation and cropping	164	— organic phosphorus in	
Press-mud, utilization of	158	— (Indian red), studies in	137,
Pulp (mango) dry weight determination of	493	— (Kumaun hill), studies in	
Punjab-American cottons, periodic partial failures of	474, 603, 679	— (Indian), hydrogen clay prepared from	291,
—, biology of <i>Bruchus analis</i> Fab. and <i>B. chinensis</i> Linn. in the	851	— (Indian lateritic and red), chemical constituents of	
— canes, recovery of white sugar from	697	— of the Deccan canals	
—, citrus rootstock trials in the	381	Sorghum (Indian), variability of	
—, cold storage of fruits in the	757	—, seedling-adult colour relationships and inheritance in	
—, perennial grasses in the	409	Stem-brown disease of apple	
—, stored grain pests in the	564, 851	Storage (cold) of fruits in the Punjab	
—, white-fly of cotton in the	793	Stored grains, insect pests of	564,
<i>Pyrilla Stal.</i> (sugarcane leaf-hopper), notes on	883	Sub-fractions of hydrogen clay, properties of	291,
<i>Pyrus malus</i> <i>see</i> apple	368	Sugar industry, utilization of waste products of	
		— (white) from the Punjab and the United Provinces canes	
		Sugarcane fields, utilization of waste products of the sugar industry in	
		— leaf-hopper, Indian species of	
		—, recovery of white sugar from	
		—, sampling for chemical analysis of	
		— trash, utilization of	
T			
Tobacco, leaf-curl disease of			
— (Virginia), utilization of seed			
<i>Tirak</i> , physical and chemical properties of the soils associated with			
—, effect of sodium salts on			
—, amelioration of			
<i>Triticum</i> <i>see</i> wheat			
			263, 274, 661,

U

United Provinces canes, recovery of white-sugar
m 697

V

varieties, distribution in wheat uniformity trial
ta 274
ability of Indian sorghum (*jowar*) 527
alization of mustard 1
a catieng see cowpea
mania tobacco seed, utilization of 400

PAGE

W

Water, ascent through soil columns 648
Waste products of the sugar industry, utilization of 848
Weevil (cotton stem), biological control of 58
Wheat, fungi isolated from black point-affected
kernels 731
____ (blue) hybrids, cytology of 661
____ uniformity trial data 240, 263, 274
White-fly damage to cotton 793
____ vector, biology and population of 35
White sugar recovery from the Punjab and the
United Provinces canes 697
Wooly aphis, control of 588

